1.   A method of modeling a tool path in an additive manufacturing process

2 enabling multi-material parts to be fabricated without material interference, the method

comprising the steps of:

4   separately modeling each material as a single or multiple solid part under the

assumption that multiple materials or voids are not present;

6   ordering the parts from the outermost geometry to the innermost geometry; and

performing Boolean operations on the ordered parts to calculate the final volume

8 for each part.

2.   The method of claim 1, wherein all of the steps are carried out using a

2 CAD system limited to single-material designs.

3.   The method of claim 1, wherein the tool path is a spiral-in, spiral-out,

2 arbitrary direction raster path, or a combination thereof.

4.   The method of claim 1, further including the step of reflecting the

2 geometries to accommodate overhang or undercut features.

5.   The method of claim 1, further including the step of embedding

2 commands as appropriate to accommodate closed- or open-loop control over the

fabrication process.

6.   The method of claim 1, further including the steps of:

2   generating multiple tool paths; and

merging the toolpaths into a single toolpath file.